

# THE HIGHER VALUES OF THE ZOOLOGICAL PARK

BY

Charles Atwood Kofoed, Ph.D., Sc.D.

Professor of Zoology, University of California



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ADDRESS AT THE DEDICATION  
OF THE  
ELLEN B. SCRIPPS  
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Charles Atwood Kofoed, Ph.D., Sc.D.  
Professor of Zoology, University of California

*The underlying aims and purposes of the many philanthropies of the generous donor of this finely planned and amply equipped laboratory and hospital of the Zoological Park of San Diego appear once more in this munificent gift. These aims significantly lie in the rather far reaching relations which the work fostered within its walls has to human welfare, to the growth of human knowledge and to the widening of human sympathies.*

*Here human sympathies have freedom and opportunity to reach out a helping hand to the animals held in leash for man's pleasure and information. Here the eager mind of man seeking to unravel the causes of, and to find modes of control of disease will have at hand the indispensable tools for his researches. Here he may widen his outlook and lead the way for others to follow in the warfare of man upon ignorance, superstition, and fear. This institution stands for widened sympathies, enlarging knowledge, and stimulation of human endeavor.*

## THE HIGHER VALUES OF THE ZOOLOGICAL PARK

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The evidences of man's long and continuous association with the beasts of the field and forest accumulate with each study of his prehistoric settlements. This appears not only in the refuse of his villages accumulated through long ages in shell mounds and kitchen middens where the bones of the mammals, birds, fishes and the shells of mollusks which he gathered in his search for food, constitute no small part of the mounds that mark the village sites of the ancient hunters, but also wherever we turn to the study of his folk-lore, his art, or his religion.

It is interesting to note that the explorations now in progress on the skeletal material recovered from the Emeryville Shell mound on the shores of San Francisco Bay reveal not only the bones of those mammals and birds used for food or for clothing, but also of representatives of practically all the larger birds and mammals known to inhabit the region. It is of course possible that the Indians used all of these animals either for food, clothing, adornment, or for ritual, and that these more or less utilitarian motives led to the hunt, the capture or association of these early Californians with this wide range of animals of their long distant day.

It is a far call from Indian on the windy and fog-shrouded shores of the Bay of St. Francis to the stately and attractive park about us here where the animal life, not only of this western coast, but also of far distant lands, finds a comfortable and provident home, and a sympathetic rather than hostile welcome from throngs of interested visitors.

The basis on which there has grown up this great advance in our relations today with animal life as compared with that of primitive man of long ago not only on our coast but elsewhere, is to be sought in a great variety of influences which have contributed to our civilization. Primitive man with his rude sling, club, or bow and feeble arrow, with his rough shelter, defenseless **children**, and his need of protection of **his** stores of food laid up against times of drouth, famine and winter's cold, was at the best but poorly prepared to defend himself and his from marauding beast impelled to attack him by hunger or fear. The wolf, the tiger and the lion, the leopard and great bear, were his dreaded foes, the elephant, the

buffalo, the deer, and the wild boar, and the mischievous monkey and baboon, robbed his fields and demolished his growing crops. Death lurked in the serpent of the desert and tropic forest and the monsters of the deep filled him with terror.

It is not strange, therefore, that man's hair should instinctively rise at the rustle of the snake in the grass, and that a seemingly instinctive terror of strange animals is so easily aroused in the child or comes so quickly to expression in the adult suddenly confronted with some new and strange beast. Man's heel aches to crush the head of even the harmless grass snake, and the lust for the blood of wild beasts and birds has not only the deep seated hunting instinct back of it, but perhaps also something of man's primitive antagonisms to other living things with whom for ages his ancestors struggled upwards to mastery.

The forces which have fostered man's release from fear of the wild and his more kindly interest in them have sprung from his control of nature due to superior weapons, to resulting extermination and increasing rarity and growing wariness of the beasts themselves, and to the growth of agriculture and transportation. Man's domestic animals have replaced the bison, deer and antelope, and ceaseless warfare has all but exterminated the grizzly, mountain lion, and timber wolf—and is rapidly approaching this end even among the great cats of Africa. The great herds of ruminants of that vast continent of mammals are also rapidly approaching the era of extinction.

Fear of the wild is thus all but forgotten because we meet few wild things of which to be afraid. Curiosity to actually see what man once feared thus comes to have a wider field for operation today than in earlier days of human civilization.

Moreover, man has always been an inquisitive animal. He is instinctively social rather than solitary. He loves the associations with his own kind and widens the shelter of his sympathy to cover other animate things. His aesthetic instincts and tastes derive satisfaction from the contemplation of the form, color, antics and behavior of other animals, and his love of mastery gives him pleasure in the associations and dependence of his flocks and herds and beasts of burden, and in the affection and attachment of his pets such as the cat and dog.

No more striking proof of this deep-seated and universal interest of man in the marvels of the living world can be found

than that presented by the great variety of types of domestic animals which civilized and uncivilized man had gathered about him, long before he had even heard of Mendel's laws or before seed men and animal breeders were abroad in the land. Take for example the great range in domestic cattle, from the shaggy Highland type of the Scottish moors to the sleek Jersey and the ponderous shorthorn, or the ever greater variety of dogs, from the Great Dane, the St. Bernard, and the Russian wolfhound, to the hairless Mexican, the King Charles spaniel or the Pekingese. They owe their presence among us today to man's curiosity, his love of new and unusual types, and to his patient, painstaking care to protect, isolate and keep pure these aberrant and unusual types of the dog. Some of them are by reason of training distinctly serviceable to man, but at the best most of them are just supremely interesting to man. Man is not the only social animal which has given himself to the cultivation and preservation of other animals which dwell with him. It is biologically—or shall I say psychologically—very significant that the social insects have like instincts, almost human in their tolerance and care, for keeping in their nests other insects, much as we keep our domesticated animals and pets. Thus the ant of the Illinois cornfield pastures its aphids on the roots of the growing corn, and the honey dew milked in these subterranean dairies supplants the more substantial milk, butter and cheese which corn might have produced for the farmer. The industrious ant beats the farmer to the crop.

Other ants are known to harbor various beetles and bugs in their nests, and even to take them with themselves on their migrations, much as we take the family cat when we move. In some cases it may be nearer the fact to say that these myrmecophile beetles follow the procession as does the family dog. In any event both ants and termites are remarkable for the long list of other insects which make their only homes in the nests of the numerous species of these social insects. Though the ants are carnivores and the deadliest foes of other insects, they do not kill off these guests, but harbor, protect and even may feed them. Their social instincts have been so widened in their evolution that these alien species have come to form a part of their normal social complex.

The appreciation and love of animal life manifested today in the large attendance upon zoological gardens and aquaria in

our large cities, and the prevalence of bird study among all classes of people in our own country and abroad is not a new feature or unique in our times. We need only turn back to the Egyptian tombs and their records in wall paintings, in mummies, and in their hieroglyphic writings, to find how widespread in ancient times was the worship of animals wrought into the warp and woof of Egyptian customs and their religious symbolism. The pictured stories of the lives of the Pharaohs reveal their love of observing the wild birds of the marshes of the Nile, and no triumphal return from conquest abroad was ever properly graced unless embellished with the strange and unusual animal life of the forests and plains of the subject peoples. The extent and range of the knowledge of the animal life of Africa which the Egyptians had acquired is remarkable as revealing their interest in and enjoyment of animal life.

If we turn to the ancient civilization of India and Ceylon, or the still older records of the Chinese people, we find imbedded in their religions and culture evidences of interest and high values placed upon animal life. This is seen in its highest reaches in the concept of the transmigration of man in other lives into the bodies of the animals, and also in the Hindoo respect for the sacredness of all animals.

We thus find particular animals, such as the ox, the dragon, the elephant, and the serpent, deified or worshipped as the embodiment of supernatural principles, or otherwise wrought into the social and religious life of the people for centuries past, if not indeed for milleniums.

The folk lore, the tribal customs, the ornaments of the dancer, the equipment of the warrior, and the charms of the voodoo priest of the native tribes of Africa are permeated by, or drawn from, the abundant and varied animal life of that great continent of mammals. The ostrich's plumes, the lion's mane, the leopard's spotted coat, the long horns of the water buck and eland, the elephant's tail, and the tusks of the wart hog adorn the savage who seeks to express himself before his friends, or to charm or frighten his foes.

Perhaps the most convincing proof, and perhaps also the earliest record we have in human history of man's early deep and abiding interest in animal life is to be found in the caves of France and Spain. Here primitive man of the Reindeer Age has left enduring records of his keen observations on animals,

of his intimate knowledge of their antics and behavior, of his aesthetic appreciation of their forms and actions, and of his own artistic skill in portraying their aesthetic values in carvings on horn, bone, and ivory, in mural paintings on the walls and ceilings of caverns, in sculptures in ivory, bone, and soapstone, and in statuettes moulded in clay, still surviving on the floors of remote parts of the caves.

These artistic productions reveal a real aesthetic sense, a masterly realism, skillful technique and marvellous strength of execution. These masterpieces are full of life and action. They represent the fauna of the Reindeer Age. There are Mammoths with ponderous movement, shaggy coats of long hair and long curved tusks, agile rhinoceroses of massive proportions, horses of spirited bearing, rearing, plunging, baring their teeth in play or combat, bristling boars gnashing their teeth, herds of red deer and reindeer always on the move, chamois with ears intent and erect mane, leaping bison with lowered horns and lashing tail, dancing bears with bulging heads, cats and wolves with sinous supple bodies, sneaking on their prey, and leaping salmon.

Art springs from life. It rises above the drudgery and toil of the day's work and reveals man's inner springs of action, and his deepest thoughts. It reflects his mental and emotional life and reveals those factors of the environment which most powerfully stimulate and control his mind. In the light of the spirited artistic records of Cromagnon man of the Reindeer Age, we may legitimately infer that the animal life of his day entered deeply into his intellectual and aesthetic life and filled it to the exclusion of most other factors of his environment outside of his own fellow cavesmen and tribal foes.

It is a far call from the cave painters and clay modelers of the Reindeer Age to the Zoological Park of San Diego, with its beasts from all continents of the globe and all climes from equatorial to polar, all with ample room and permanent housing fitted to their needs. It is even a greater distance which parts the mental approach of the Azilian hunter to his animal friends and foes from that of man today to the animal life with which he is in contact. The factors which separate the two are manifold and not always easy or simple to analyse and appraise. Some of them which stand out most clearly are the following:

Man has tamed, brought under domestication and made

dependent upon him, a wide range of useful animals which the Azilian hunter had not yet brought under subjection. He knew them only as game or as foes. But now every Mary may have her little lamb, and domesticated sheep, goats, oxen, horses, asses, elephants, dogs, cats, rabbits, chickens, ducks, geese, turkeys, pigeons, delight and charm their owners, as well as serve them. Moreover under the sheltering hand of man he has at first unconsciously, with only casual curiosity to guide him, preserved the aberrant offspring, and under restraint of domestication so inbred these variants and sports that he has diversified every animal he has domesticated, to a degree without parallel in the sterner conditions of wild life. By artificial selection, by cross breeding, by culture and by education, he has developed in the descendants of one or two species of wolves, or some closely allied animals which he early in his hunting career captured and tamed and reared in intimate association in his cave home, the present types of dogs, of very marked structural differences, and even greater behavioristic differences, such for example as the coursing greyhound, the pointer, the setter, the hound, the police dog, and the toy dog whose intellectual accomplishments scarcely exceed those of other less animated parlor ornaments. Man's efforts in this field of the development of different animal types from wild stocks were wholly empirical throughout most of the process, in fact until about twenty-five years ago when Mendel's laws of heredity were rediscovered and their scientific basis unravelled by the high-grade microscope applied to the study of sex cells and of their contents the chromosomes. Since 1900 the whole theory of the gene—the unit of heredity—has been evolved and from now on the breeding of animals to develop definite types is on a truly scientific basis. When the breeder once learns the genetic constitution of the stocks under his control and has in hand the knowledge of their dominance, linkages, and lethal combinations, he can set about to attempt to produce new types, based on premutations of the genes, and may hope to succeed in producing them to order in a relatively small number of generations. Thus, wheat breeders have developed a type of wheat suitable for the cold climate of Canada and at the same time having desirable milling qualities. Likewise fowl breeders have developed a type of fowl with high egg-laying capacity and sufficient development of muscles to serve as a profitable table fowl at the same time.

As a result of this new knowledge a whole new field of valuable and significant opportunity is opened in every zoological garden, for experimentation in hybridizing and breeding wild stocks not heretofore domesticated by man. There is a possibility not only that some new food types, or fur-bearing mammals, might be developed, but also that new types of pets might be discovered or created by the magic of the hybridizer who will put together desirable qualities of color, form, pelt, behavior, and size, in hitherto unknown combinations. This is especially true of fur-bearing mammals. It is well known that in all domesticated mammals a certain range of coat colors and color patterns has been attained by breeders. These colors are well illustrated in cattle and dogs. Parallel series in colors and color patterns have been developed in relatively few years in culture mice and rats, and in guinea pigs. It is reasonable to expect that in time a like series could be developed in foxes, skunks, minks and other mammals whose pelts are of value as furs. Similarly, the qualities of texture and length of hair are open for experiment and improvement by breeding. Among wild animals when such aberrant forms appear they are quickly swamped out in the common herd, or else fail to mate and leave offspring because they are different, and so quickly disappear. Man today can do vastly more with animal breeding than the cave man of the reindeer age who first abandoned the chase to become a breeder, because today man knows how to undertake the task, and his objective may be clearly defined and the path by which it may be attained has been blazed by our knowledge of the mechanism of heredity.

In another important respect our knowledge of animal life has made notable advances over what the cave man knew, namely in the matter of the mind and behavior of beasts. To be sure, the science of animal psychology is, as yet, far from attaining the goal reached in our knowledge of heredity. It may also be said with considerable probability of the truth, that savage man probably knew a great deal more empirically about the habits and behavior of wild animals than any one of us knows today. He lived among them more closely than we do. He was dependent upon them for food and clothing, and the safety of himself and his family depended upon his intimate knowledge of their footprints, their sight, their feeding habits, their ways in the forest, and their seasonal migrations. I was

much impressed by the amount and nature of such animal lore among primitive people in 1916 when I went on a shikari with a famous hunter in Mysore, India, in the private hunting preserves of the Maharajah of Mysore. We had the services of two of his most expert game trackers. These were jungle boys, of a primitive tribe who build no huts, cultivate no crops, but live in the forest and get their sustenance from its plants, roots, fruits, seeds, and its wild animals. They have no firearms, but depend almost wholly on snaring and trapping their animals for food.

We were on the trail of the Indian bison or gaur, a wild ox, feared more than the tiger for its ferocious charges upon man, without provocation and without warning. There was known at be a small herd of this now almost extinct species in this forest located on the edge of Western Ghats in the largest jungle in India, save that on the slopes of the Himalayas. We had entered the forest at the remotest forest ranger's hut and were making our way at daybreak through the dew-laden grass and low chaparral of the rather open forest. Our two boys were in advance, moving as noiselessly as any wild thing, through the brush. Suddenly they stopped, scanned the ground intently, ranged across about one hundred feet on either side of the trail, and came back to our leader reporting that a herd of seven had passed that way the day before, consisting of two young bulls, three cows and two yearling calves, that they had been feeding leisurely. All I could see was some rather faint depressions in the sward. Shortly afterwards they came back to us much excited, with every sign of greatest caution, with the report that we were close upon the heels of a solitary giant bull, driven out of the herd, who had passed that way browsing leisurely, about 30 minutes before. Their report was exactly accurate, for within fifteen minutes we came upon the animal. However, my own observations on the scarcely visible track would not have yielded to me a tithe of the information these jungle boys extracted from it.

While such information gathered by keen eyes and long experience in the forest is of utmost importance, it is not animal psychology, although the data might be used as part of its basic material. Our knowledge of the habits and instincts of wild animals will probably be determined with accuracy only from them in the wild, rather than from their behavior in confinement.

Nevertheless, comparative studies of utmost value will be made and perhaps can only be made on such animals while in confinement.

Of most interest to man in this field is naturally the study of the habits, instincts, behavior, educability and emotions of the primates, especially those of the orang, chimpanzee, gibbon and gorilla. Notable in this field is the work of Dr. Kohler on a group of these animals on the Canary Islands, and of Dr. Yerkes on another group in Cuba, and certain individuals in confinement at New Haven.

It is obvious that climatic conditions must be favorable for these rather delicate animals, which at the best do not thrive in confinement, if they are to be protected from disease, especially tuberculosis, and survive over a length of time sufficient for adequate observation. It would seem that here in your garden at San Diego, ideal conditions for a primate colony are present, and that in time it might be feasible to develop in this favorable environment a degree of freedom from restraint in which a breeding colony might result. If so, the unique advantage of being able to study the family life of these anthropoids would present itself. This would be of the utmost value in the comparative study of the evolution of the family and of society.

In many ways the zoological garden affords opportunities for the study of the habits and behavior of the wild things of field and forest. The ultimate values of such studies may be difficult to forecast in the present state of the growth of the science of psychology. It is, however, reasonable to suppose that results in this field will form a part of the foundation of our knowledge and interpretations of human instincts, emotions, and behavior, both racial and individual. The kinship of man with the rest of the living world, and more particularly with the primates, not only in cellular structure, general morphology, individual development, growth, hereditary basis and metabolic processes is paralleled by his kinship in brain structure and nervous functions.

We may confidently expect some light to be shed on the origins of man's distinctive achievements in intelligence by a study of the emergence of intelligence and its varying modes of expression in other mammals, especially in the higher apes. To this end a broadly conceived and ably administered zoological park becomes an indispensable working laboratory.

In still another field of ever widening significance the man of today is incomparably removed from his progenitor of the Reindeer Age. To the latter, disease was a mystery. It struck at him and his out of the dark without warning or mercy. To primitive man disease was the idle whim or the evil purpose of malign spirits of the unknown dark, or the machination of his secret enemy. To forewarn or appease or avoid, his only recourse was to employ equally secret and mysterious weapons of charms, incantations, warnings, and terrorism. His medicine man was the possessor of such secret remedies and his professional outfit usually included every freak of nature known to the primitive community, and behavior equally weird and abnormal to exorcise the devils of disease. One of the most interesting phases of the early history of medicine is the very large place occupied by abnormalities, monstrosities, the absurd, unusual, freaks of structure in man and the rest of the animal world. Thus in the collected works of Ambroise Pare (1517-1590), the father of modern surgery, one finds the dragon, the unicorn, the phoenix and other mythical animals, and a choice array of human monstrosities, deformities, known and mythical, at least in interpretation. The extent to which such *lusus naturae* entered into the pharmacopeia of mediaeval times may be illustrated today by a catalogue of the contents of a Chinese Herb store.

The cave man of Azil had perhaps learned empirically what most savage tribes had come to practice blindly, namely, fear or dread of the stranger. While a part of this resistance and hostility may well have had its origin in his defensive reaction to protect his family, his possessions, his hunting grounds, and his home, there is another phase by no means unimportant—namely, the stranger often brought disease and death in his train.

He had no knowledge of germ diseases, of immunities, of the nature and causes of epidemics—but perhaps he had noted the fact that strangers from distant tribes driven into his territory, or eating at his camp fires, were followed shortly by a holocaust of mysterious deaths. Witness what happened recently in the Manchurian pneumonic plague. This may best be illustrated in the simple directions issued to Chinese villagers in the last epidemic in explanation of the movement of this, to them, mysterious disease. These explanations read:—There will come to your village a traveller or a caravan of travellers

who will put up at your caravansary. One man of them may be sick, perhaps he may die. The caravan will move on next day. Ten days later the servant who built his fire or conversed with the coughing, sneezing traveller will take sick and die. Then the servant's family will take sick and die. Then the members of other neighboring families who visited the sick will likewise sicken and die, and no matter how distant the host to whom the guest fleeing the plague goes, he always leaves behind him the mysterious death. The way to stop this plague is to stop all travel, keep away from strangers, and when sickness occurs don't go near the faces of the sick and don't permit those who have had contacts to leave the house of the sick.

By these simple methods the dreaded and deadly Manchurian plague was held in leash till it died out. By similar methods of isolation and control the bubonic plague, which in the early part of the present century started once again on its mad career of destruction, has been held in leash by isolation, quarantine, rat control, and inspection and fumigation of shipping. The stranger brings disease to modern man as he did of old to the cave man and to the cave man's rats and perhaps sometimes also to the cave man's food supply of venison and rabbits. But modern man no longer fears the stranger because he knows the causes of disease and is prepared to combat them all, and knows how to throttle and circumvent the most of them, largely by reason of his knowledge of disease among animals.

The most striking instance of the interrelationship of man and other mammals in the matter of disease is recorded in the dramatic career of African human sleeping sickness. The scanty memoirs of the African slave trader of the last two centuries reveal the fact that he was aware of the existence of a mysterious malady among negroes of the Guinea Coast which was marked by lethargy and universal fatality. The disease was, however, not known to modern medicine in man, until near the opening of the present century, although a similar fatal disease had long been known among cattle and other domestic animals as the tsetse fly disease. Indeed, on the title page of D. Livingstone's "Missionary Travels" there is a picture of this fly, and "fly country" to this day bars civilization and exploration and transportation in tropical Africa. The modern caterpillar tractor is the only beast of burden which is fly-proof, and this is opening up tropical Africa at last. Human sleeping sickness

came into prominence shortly after 1900 because of the sudden devastating epidemic in Uganda. A country of dense population and a rather high civilization about the Great Lakes of the highlands of Central Africa was stricken with a mysterious malady which, because of its symptoms in the last stages, came to be known as sleeping sickness.

This epidemic is a dramatic and tragic incident in the white man's exploration of the Dark Continent. General Gordon with a small contingent of British troops was besieged in Khartoum by the Mahdi and his fanatical Moslem Bedouins of the desert. Left to his fate by a change in British policy, he and his army were massacred by the hordes of besieging tribesmen, but not before a motley army of native African troops had been assembled in Central Africa, and passing through the Great Lakes district, left behind them, probably from infected soldiers from the Congo basin, the seeds of this epidemic. This smouldered for a number of years and then broke out with violence in the Uganda district. The result has been the death of about 900,000 natives, the depopulation of once populous villages, the embargo on trade and caravans through large areas, and the practical wiping out of a rather highly developed native civilization.

This disease is produced in man by a microscopic animal parasite which lives in the blood and walls of the blood vessels, and finally gains entrance into the fluid of the spinal cord and brain with resultant lethargy, coma, and death. No certain cure is as yet known, though Bayer 205, an arsenical preparation, is promising. It is this drug, the secret of which Germany is said to have offered to the allies in return for her lost African colonies.

But man is not the only host for this parasite, though he appears to be the only animal which suffers severely from the effects of its presence. The mammals of Africa very generally have trypanosome infections, for example, the various antelopes, monkeys, wild pigs, etc., each appear to have different species of parasite. These parasites may some of them be experimentally inoculated into other mammals. Even the crocodiles are found to be infected. The particular parasite so destructive to man, *Trypanosoma gambiense*, is also found in the bush buck or sitatunga, a common member of the antelope family widespread in Central Africa. This is the reservoir host from

which infection is carried to man. Once established in man it spreads with facility in the villages from man to man. The only known mode of conveyance is by the tsetse fly, *Glossina palpalis*. This fly lives in the margins of streams and lakes, gathers at the fords on the forest trails, bites the infected soldier or carrier of the passing caravan and, if within thirty minutes it bites another person, it mechanically transfers the infection to the next victim by the smear of infected blood on the mouth parts. Sixteen days later, after the parasite has run an obligatory course of development as a parasite in the cells of the intestine of the fly and has developed an infective stage of the parasite in large numbers in its salivary glands, it again becomes infective to man and may carry the disease to every man it bites throughout its life. It may also infect a large number of different native mammals by biting them and these in turn may infect other flies, and so the disease spreads in ever-increasing proportions.

This picture of infection in a wide variety of mammals in Central Africa, and in resulting disease in man by transfer of the infection to him, is profoundly significant of a fundamental biological fact that man's kinship to the animal world is nowhere more clearly illustrated than in the facts of disease, its sources, its causes, the nature of epidemics in both, and the immunities and serological changes induced by infections.

Our knowledge and control of disease has been arrived at not only by the study of disease in man, but quite as much by the comparative study of disease and its processes in animals. We inherit not only our skeletal structure, our gill slits, our decadent tail and appendix vermiformis from our mammalian ancestors, but also our pneumonias, typhoids, and hookworms, by the processes of evolution. This is not often by the process of immediate contagion as in plague from the rat and sleeping sickness from the bush buck, but by ancestral transmission down the long, long trail of descent with progressive or sudden modifications.

We dedicate today this beautiful building equipped to render first aid and permanent protection to the health of the animals in our friendly care. It is at first sight a gesture of friendship to the helpless victims of disease. It reflects the growing sense of the kinship of suffering which we all share with the wild in our struggle upward. It is an expression of

our sense of responsibility for the helpless, of Love Divine all love excelling, reaching out through this hospital and laboratory to relieve, check, and control through knowledge dearly bought the ravages of disease among the helpless beasts.

But here, as in all other relations of life, in helping others we also help ourselves to a better knowledge of the nature, causes, control and prevention of disease among our own nearer kith and kin.

There is still another value of the zoological park which is perhaps the least utilized and least appreciated of all by us, but was recorded by the man of the Reindeer Age in his matchless cave paintings, and sculptures. I refer to the aesthetic and artistic appeal of animal life. The Netherland school of artists as represented by Memling and Hans Sachs caught something of the aesthetic values of animals, but in their paintings they have only a secondary place, they are slipped in on the side, as it were. One needs a hand lens to see them. The Japanese artists have caught more of the spirit of the animal, and their colored prints are in some instances magnificent portrayals full of life and action, beside which the best of Landseer and Rosa Bonheur seem rather stiff and tame. May we not hope that with the conditions of environment so favorable as they are here in your superb garden at San Diego, there may in the future come some boy or girl who will so love animals and so develop the technique of interpreting their distinctly animal life and behavior that he or she will preserve upon canvas the animal behind the mask of fur and whiskers, and reveal him to us all, as did the Azil man of old, who evidently knew and loved the beasts, and knew how to make them cavort and reveal themselves to us today, although his only tools were a frayed bit of wood and some colored clay, and his canvas the rock of the dark cavern.

The higher values of the zoological park are elusive, we seek to express them in the results of animal breeding, in study of animal psychology, in our knowledge and control of disease, and lastly in our aesthetic evaluation of the beasts. But these are only the masks behind which hide the realities of the Ultimate. They all contribute to the enlargement of the human spirit, they all lead to the more abundant life towards which the whole creation groaneth up the long, long trail of upward and ever widening development of man and his kin of the wild.



